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FILED ELECTRONICALLY

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Applications of Comcast Corporation and Time Warner Cable Inc. for Consent to Assign or Transfer Control of Licenses and Applications*, MB Docket No. 14-57

Dear Ms. Dortch:

On March 30, 2015, Alex Hoehn-Saric, Charter Communications, Inc.'s Senior Vice President for Government Affairs; Christianna Barnhart, Charter's Vice President for Regulatory Affairs; and the undersigned met with Diana Arrieta, Susan Aaron, Hillary Burchuk, Michelle Carey, Hillary DeNigro, Bill Lake, Mary Beth Murphy, Nancy Murphy, Brendan Murray, Alison Neplokh, and Jeffrey Neumann of the Federal Communications Commission ("FCC" or "Commission"). In the meeting, Charter responded to arguments regarding Charter's third-party modem practices.

Modem Regulations. Charter explained that its modem certification policy complies with FCC regulations. The Commission's rules are clear that MVPDs may restrict attachment to their networks if there is a reasonable risk that "electronic or physical harm would be caused by the attachment or operation of such devices."[1] As the Order implementing the regulations also made clear, MVPDs have discretion to determine what will harm their network.[2] Dropped connections, slower than promised speeds, and other customer problems constitute electronic harm for Charter's customers, and easily "raise reasonable and legitimate concerns of electronic or physical harm."[3]

In any event, uncertified modems can cause textbook electronic and physical harm to Charter's network, including for other customers. These harms include (i) interference and network congestion due to synchronization problems between the modem and Charter's CMTS; (ii) increased congestion due to

[1] 47 C.F.R. §§ 1201, 1203. Section 1202 inapplicable since it refers to contractual and similar restrictions on attachments and, in any event, must be subject to the same condition.
[2] *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, 13 FCC Rcd 14,775 ¶ 29 (1998).
[3] 47 C.F.R. § 1203.

modem incompatibility with Charter's network management technology (e.g., use of bonded channels); (iii) signal leakage beyond the 6 MHz channels that can interfere with adjacent channels, such as those carrying MVPD service; (iv) a modem's inability to allow the detection of network-crippling botnets and other threats on devices past the modem; and (v) incompatibility with IPv6, which undermines network security and future-proofing. The Commission has recognized that "signal leakage," "compromise of system security," and "electronic interference to other users on the system" are all forms of "electronic harm."[4] These potential harms warrant a careful certification process.

The certification provided by Cable Labs is insufficient for a number of reasons. *First*, in the area of security, Cable Labs tests only whether an MSO filter can be applied to a modem as a general matter. It does not test whether a particular filter used by a particular MSO would be compatible. If the filter is not compatible, it can cause network vulnerabilities from the ports the filter is designed to block (e.g., hacking-oriented ports). *Second*, once Cable Labs certifies a modem, any firmware update for that modem is automatically certified. Yet firmware is at the heart of a modem's operations, and updated firmware can cause network harm. *Third*, Cable Labs tests certain important features—such as the ability to load balance through the CMTS—just once or a few times to ensure that the feature is present. But it is important to test these features repeatedly to ensure they will work when invoked hundreds of times or more, as they will be in the real world by customers.

It is also appropriate for the certification process to test routers when the routers are part of the same device containing the modem. The modem and router generally rely on the same processor. When the router operates, it activates more processes in the processor, which can change the operation of the processor in a material way and/or cause interference. Moreover, the router manages the ARP process, which maps MAC addresses to IP addresses. A router that performs this function improperly can cause problems communicating with the CMTS and, ultimately, the failure of the specific modem and a broader service outage. Moreover, the WiFi functionality in particular could affect the processor and cause congestion and interference problems because of the CMTS and bonded channel issues pertaining to the modem itself, as described above. Finally, to the extent that a gateway device is certified by Charter, customers will not distinguish between a malfunctioning modem versus router in an integrated unit. Customers will expect the device to provide broadband services at the level advertised by Charter and will initially contact Charter if any issues arise even if the customer uses a third party device.

Certification Process with Zoom. Charter also updated Commission staff regarding efforts to test and certify Zoom's modems. Charter reported that it contacted Zoom and provided them a direct contact to a senior engineering officer at Charter, the Vice President of Access Architecture. Charter said it has no interest in keeping Zoom modems off its network, as it does not manufacture modems and, indeed, many other third-party modems are already on Charter's network. Charter was hopeful that Zoom would engage and opt to have its modems certified through Charter's carefully developed process—a process in which many companies are participating without complaint and which has already resulted in the

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[4] *Id.* at ¶ 29.

certification of a Netgear modem. However, Zoom responded today that it does not wish to engage in the certification process unless it can obtain its desired pricing treatment.

Please contact me if you have any questions regarding this meeting.

Sincerely,

John L. Flynn

cc: Diana Arrieta
Susan Aaron
Hillary Burchuk
Michelle Carey
Hillary DeNigro
Bill Lake
Mary Beth Murphy
Nancy Murphy
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